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A New Subspecies of *Xenomyrmex stolli* from Northeastern Mexico (Hymenoptera, Formicidae)[1]

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When William Morton Wheeler revised the genus *Xenomyrmex* in 1931 (Rev. Ent., vol. 1, fasc. 2, pp. 129-139) he set up an exasperating problem for the student of geographical distribution. Although Wheeler's studies were based on wholly inadequate series of specimens, he described five new subspecies which he assigned to *X. stolli* Forel. Two of these (*cubanus* and *mexicanus*) were based on three workers each, and one (*rufescens*) was based on a single female. It is seldom possible to evaluate the status of a subspecies based on so few workers. Hence in most cases no conclusive estimate of Wheeler's subspecies can be made until additional material is secured. Despite its shortcomings Wheeler's 1931 study provided us with valuable new data on the distribution of *Xenomyrmex*. Wheeler showed that the southern representatives of *Xenomyrmex* range from Panama to central Mexico. He was thus able to close some of the gap which had previously separated the typical *stolli* of Guatemala from the Florida and Bahama representatives of that species. He also showed that the range of the latter cluster of forms extends to Cuba. But, despite the records published by Wheeler, there still remained a wide gap between the northern and southern representatives of *Xenomyrmex stolli*. It seems to the writer that, in the case of this rare genus, any record that diminishes this gap should be published. I have done so here, even though this involves the recognition of an additional subspecies. But in this instance comparatively abundant

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material is available, which permits a revaluation of some of the forms already described.

On February 7, 1952, the writer took a colony of *Xenomyrmex* in the state of Nuevo Leon, Mexico. This colony was secured 20 miles northwest of Montemorelos. It should be noted that the above station lies 140 miles north of the Tropic of Cancer and 500 miles north of the previous northernmost record for *Xenomyrmex* in Mexico. The latitude of this station is approximately 25° 40′ N., hence is within 100 miles of the latitude of the northernmost station at which specimens of *Xenomyrmex* have been taken in Florida (Lake Placid, T. C. Schneirla). The discovery of the Nuevo Leon colony indicates that the northern limit of the range of *Xenomyrmex stolli* cannot be greatly different on opposite sides of the Gulf of Mexico. On this basis a much more acceptable explanation can be given for the absence of representatives of *Xenomyrmex* in northern Florida, the central Gulf States, and southern Texas. The Nuevo Leon colony is closer by several hundred miles to the forms that occur in central Mexico than it is to those that occur on the eastern side of the Gulf of Mexico. Nevertheless, the structural relationship of the Nuevo Leon colony is clearly with the latter group of forms. In both the thorax is sculptured, a feature not found in the southern representatives of *Xenomyrmex stolli.* It is therefore reasonable to suppose that at some previous time there was a population of a form of *Xenomyrmex stolli* with a sculptured thorax, whose range extended entirely around the northern boundary of the Gulf of Mexico. As far as is known this sculptured population survives at present only in northeastern Mexico and in southern Florida and the adjacent islands. The isolation of the two segments of this sculptured population on either side of the Gulf has produced much more pronounced subspecific differences than the minor variations which occur in the units of the eastern population that have been cut off in Florida, the Bahamas, and Cuba. As is shown below, these variations consist of no more than slight differences of color. The writer believes that these color differences are without geographical significance and that Wheeler's subspecies *lucayanus, cubanus,* and *rufescens* should be considered as synonyms of *floridanus* Emery. If this view is correct, there are only two geographical races in the northern part of the range of *Xenomyrmex stolli,* the eastern subspecies *floridanus* and a western subspecies described below as *nodosus.*

Xenomyrmex stolli nodosus, new subspecies

WORKER: Length, 1.7–2.4 mm.

Head distinctly longer than broad, with the sides feebly convex and

a little more narrowed in the anterior half of the head than in the posterior half. Occipital margin feebly concave. Clypeus with a broad, angular impression in the middle of the anterior margin. This impression passes laterally to the base of the flat teeth or corners which terminate the anterio-lateral angles of the clypeus. Mandibles with three distinct teeth on the outer half of the masticatory margin. These teeth successively decrease in size but the innermost one is larger than the row of denticles or serrations which make up the remainder of the masticatory margin. Antennal scape short, reaching approximately three-quarters of the distance between its insertion and the occipital corner. Dorsum of the promesonotum flat in profile, except for the anterior declivity. Mesoepinotal suture broad and deep. Epinotum cuboidal, very slightly convex above and with a distinct though blunt angle between the basal and declivious faces. Petiole with a low but distinct node above, the anterior angles well marked, the ventral surface of the petiole bearing

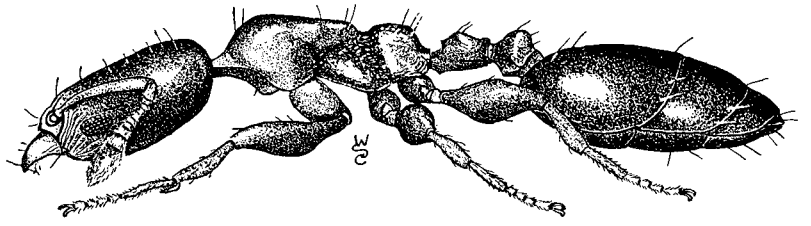

FIG. 1. Worker of *Xenomyrmex stolli nodosus*, new subspecies.

a small but clearly marked ventral tooth. Postpetiole in profile evenly rounded above and with a prominent, obtuse, angular projection below. Seen from above the petiole is notably longer than broad and much narrower than the transverse postpetiole. Fore femora swollen dorsoventrally but flattened laterally. Middle and hind femora strongly swollen in the middle, the swollen portion circular in cross section, or nearly so.

Head smooth and shining, with scattered piligerous punctures, except for the striated area between the eye and the insertion of the mandible. Pronotum smooth and shining except for feeble sculpture on the neck. Mesonotum smooth and shining above but with varying amounts of reticulo-rugose sculpture on the sides and on the mesopleurae. Mesoepinotal suture with heavy reticulo-rugose sculpture. Epinotum smooth and shining above but with moderately strong reticulo-rugose sculpture on the upper parts of the sides and with longitudinal rugae at the lower edges of the sides. Petiole with the reticulo-rugose sculpture mainly con-

fined to the anterior corners, the remainder feebly sculptured and rather strongly shining. Postpetiole and gaster smooth and strongly shining. Sparse erect hairs are present on the mandibles, upper surface of the head, thorax, petiolar nodes, and the gaster. The few erect hairs on the femora are distinctly shorter than those elsewhere. Most of the body hairs are appressed and short. Funiculi, tibiae, and tarsi with numerous short, close-set, erect hairs.

Color blackish brown; mandibles, antennae, tibiae, and tarsi brownish yellow to clear yellow.

FEMALE: Length, 5.3 mm.

Larger than the female of *floridanus* but otherwise very similar. A low, rounded projection is present on the upper surface of the petiole, but this projection is much smaller than that of the worker.

Described from 61 workers and a deälated female which were nesting in a live oak limb and unassociated with any other ants. The station where this colony was secured was situated at an elevation of 1400 feet in the eastern foothills of the Sierra Madre Oriental, 20 miles northwest of Montemorelos in the state of Nuevo Leon, Mexico.

Worker and female types and worker paratypes are deposited in the collection of the American Museum of Natural History.

As already noted, the subspecies *nodosus* differs from any of the southern forms of *stolli* in the presence of sculpture on the sides of the thorax. It differs from *floridanus* in its transverse postpetiole, which is clearly wider than the petiole. The postpetiole of *floridanus* is much more nearly square and at most only very little wider than the petiole. The well-developed projection or node on the dorsal surface of the petiole of *nodosus* appears to distinguish this subspecies from any other form of *stolli*.

I wish to discuss certain characteristics of the sculpture of *nodosus*, for these features seem to be true of all the sculptured forms and they have been a source of confusion in the past. The visibility of the sculpture of these insects is largely dependent upon the angle of illumination. For the most part the sculpture is shallow, and the rugae, reticulations, and the areas between them are all strongly shining. Hence the angle at which the light falls will determine, to a surprising degree, whether the surface appears densely sculptured or smooth and shining. It is unusually difficult to determine the extent of such sculpture, and the situation is made much more confusing because the amount of sculpture varies notably in different individuals. But it may be said that even in the most heavily sculptured individuals there are always areas on the sides of the epinotum and the mesopleurae which are free from sculpture. These

areas are smooth and shining regardless of the angle of illumination. It is certain that Wheeler was unaware of this situation, and it is equally certain that the sculptural distinctions which he gave for *cubanus* and *floridanus* are without separatory significance. I have been able to examine specimens of each of these forms, and in each the sculpture of the thorax is essentially like that of *nodosus*. The examination of *cubanus* was made on six workers from the type nest. Contrary to Wheeler's description, the sides of the epinotum and the mesopleurae are not completely opaque and densely reticulate. Sculpture is present but in addition there are strongly shining, sculpture-free areas as well. This is also true of specimens of *floridanus* taken by T. C. Schneirla at Lake Placid, Florida, yet Wheeler stated that the sides of the epinotum and the mesopleurae are finely reticulate and less shining than the pronotum in *floridanus*. Since these forms cannot be separated on the basis of thoracic sculpture, there is nothing but a color difference to distinguish them. It may be added that this is also true in the case of *lucayanus,* for this form was admittedly nothing more than a color variety of *floridanus* from the start. I have shown elsewhere (1950, Bull. Mus. Comp. Zool., Harvard College, vol. 104, p. 225) that *rufescens* also falls into this category. It may be added that even these color distinctions are suspect. When Wheeler compared the types of *cubanus* with that of *floridanus,* he noted a striking difference in the color of the two. But he was comparing specimens taken by the writer three years earlier with a cotype which had been drying out for 36 years. The six specimens from the type series of *cubanus* in the writer's collection have, in the interval between 1931 and the present, faded to a color which is so nearly that of *floridanus* that no color distinction would be possible. The writer has no hesitation in proposing to treat *cubanus, lucayanus,* and *rufescens* as synonyms of *floridanus*. It is probable that some synonymization will also be necessary in the case of the southern subspecies of *stolli* which Wheeler described. At present, however, there seems to be no way in which these forms can be evaluated.